ECON 100 - Introduction to Economics

Homework 2

- Define any variables you need to answer the problems.
- You may use any material from this course (including other students). You may use Gen AI to help check your work or understanding, but you should not copy-paste solutions or answers obtained from Chat GPT/AI.
- Define any variables you need to answer the problems.
- Keep your short-answer explanations short but clear. Your goal is to convince a skeptical grader that you understand the relevant concepts well enough to answer the question you are given.
- The questions on this homework sum to 66.
- Please be sure to write down the name(s) of anyone else you worked with on this homework (either at the top or under your name). Place a star next to your name OR underline OR some way to make it easy for me to tell which homework is whose.
- Bring any and all questions to office/student hours!

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1. (2 points) What is your name?
2. (2 points) What section are you in? (Either section number or what time your class meets)

1 True/False Questions

Indicate "T"rue or "F"alse for each of the following statements or claims. If you correctly explain why a statement or claim is false, I will give you a bonus point up to a 100% on this homework.

3. (2 points) Suppose you buy a book from the bookstore. Once you get home, you realize it is a terrible book. **Claim**: Based on what we have learned in this class, you should stop reading even though you paid for it.

4. (2 points) **Claim**: A key economic concept for understanding decision making is that the optimal decision occurs when marginal cost of an action/decision equals the marginal benefit of that action/decision.

5. (2 points) Suppose 5 individuals' demand for books is given by $P = 10 - 2Q$. **Claim:** This implies market demand for books is given by $P = 50 - 10Q$.

6. (2 points) **Claim**: Utica Coffee would be willing to supply fewer coffees at a given price if New York state increased the wage Utica coffee must pay their staff.

7. (2 points) **Claim**: Average variable cost is the main factor firms use to decide their optimal quantity supplied at any given price.

2 Multiple Choice Questions

Choose the best answer for each question. There is ONLY one correct answer for each question. No explanation necessary.

8. (2 points) Which of the following would most likely not result in a shift of the demand curve for Dunkin Donuts coffee?

   A. Utica Coffee in Clinton closes.

   B. Starbucks increases the price of their coffee.

   C. Dunkin decreases the price of their coffee.

   D. A new coffee shop opens in the Science Center.

9. (2 points) Which of the following would most likely represent in a movement along the supply curve for rental housing in Utica?

   A. A new battery factory opens in Utica, increasing the number of people who need a place to live.

   B. Utica builds new a new apartment building.

   C. Neither A nor B.

   D. Both A and B.

10. (2 points) Bill's demand for Pepsi cans is given by $Q = 5 - P$, and Danielle's demand for Pepsi cans is given by $P = 8 - 0.5Q$. When the price of a Pepsi can is \$4, how many combined Pepsi cans doe Bill and Danielle demand?

    A. 1 can.

    B. 8 cans.

    C. 9 cans.

    D. 16 cans.

11. (2 points) Which of the following is the correct equation for market demand (based on the information in Question 10)?

    A. $Q = 13 - 1.5P$

    B. $P = 13 - 1.5Q$

    C. $Q = 11 + P$

    D. $Q = 21 - 3P$

12. (2 points) Bill is at an arcade with two types of games. Pinball games cost 1 token, and give Bill 10 tickets each time he plays. Basketball games cost 3 tokens, and give Bill 20 tickets each time. **Question**: How should Bill allocate his tokens to maximize his number of tickets?

    A. Only play basketball games.

    B. Only play pinball games.

    C. Spend half his tokens on basketball, half on pinball.

    D. Bill will get the same number of tickets no matter how he spends his tokens.

3 Short Answer Questions

These questions all require math, diagrams, and/or written explanations. Remember you are trying to convince me you understand the why and how of what you are doing, not simply that you are able to get the numerical/graphical answer correct. Include specific concepts from class in your written explanations for full credit.

13. **Help Yousef Choose His Classes Next Semester!** Yousef is a first-year student thinking about what he would like to take next semester. Let's assume there are only 2 types of classes (Humanities and Science) and that each class is 1 credit. Yousef must take 4 credits/classes, but has no requirements as to how many Humanities versus Science classes has to take. His total utility from taking a certain number of each type of class in a given semester is listed below. Assume Yousef wants a course schedule that maximizes the sum of total utility across the two types of classes.

# Humanities Classes	Total Utility	Marginal Utility	# Science Classes	Total Utility	Marginal Utility
0	0		0	0	
1	30		1	15	
2	45		2	25	
3	50		3	30	
4	50		4	30	

(a) (4 points) Fill in Yousef's marginal utility of taking each type of class in the table above.

(b) (6 points) Suppose Yousef currently has 1 Humanities classes and 3 Science classes in his tentative schedule for next semester. What is Yousef's marginal cost of taking another Humanities class, and what is his marginal benefit? Give both the numerical marginal cost and benefit and explain how you arrived at your answer.

(c) (6 points) Should Youself switch from 3 Humantities and 1 Science class to 2 Humanities and 2 Science classes?

(d) (8 points) What is Yousef's marginal benefit and marginal cost of adding another Humanities class (i.e., going from 2 to 3 Humanities classes)? Give both the numerical marginal cost and benefit and explain how you arrived at your answer. Should Yousef make this switch?

(e) (2 points) Based on your answer to the above parts, how many Humanties and Science classes should Yousef take next semester? Explain.

(f) (6 points) Suppose instead Yousef started with 4 Humanities classes and 0 Science classes. Using your analysis of marginal costs and benefits, would we still recommend the same number of Humanities and Science classes? Explain.

(g) (10 points) **Completion-graded only**. Discuss this way of thinking about marginal costs and benefits as it relates to picking classes. Is this a reasonable way or thinking about it? Do you think of marginal costs and benefits when making your own decisions? Answer in at least 3-4 sentences.